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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent of

MAIL STOP: CERTIFICATE OF
CORRECTION BRANCH

Kanji HATA et al.

Patent No. 6,789,310

Confirmation No. 8750

Issued September 14, 2004

Atty Docket 00177/527415

COMPONENT MOUNTING APPARATUS
AND METHOD, AND COMPONENT
MOUNTING EQUIPMENTCertificate
JUL 01 2005
of Correction**SECOND REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 CFR 1.322**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

A timely filed Amendment After Final was filed in U.S. Application Serial No. 09/010,490 (the application corresponding to the above-identified patent) on November 21, 2003, which amended and canceled claims that were rejected in the Office Action mailed August 21, 2003. Subsequent to the filing of this Amendment, Examiner Kim contacted Applicants' undersigned representative and stated that no response to aforementioned Office Action was received, and accordingly, the November 21 Amendment was re-submitted on December 22, 2003. This re-submission was received by Examiner Kim, but the Amendment was not entered for raising new issues as indicated in the Advisory Action mailed January 30, 2004. Thus, an RCE was filed on February 19, 2004, so as to have the Amendment entered. The application was then allowed; however, the printed patent included the claims that were rejected in the August 21 Office Action and not the claims of the aforementioned Amendment.

Accordingly, in accordance with the provisions of 37 CFR 1.322, it is respectfully requested that a Certificate of Correction issue to replace the claims of the patent with the following claims, which correspond to claims 8-11, 18-28, 30, 32 and 34 of the aforementioned Amendment, except for being re-numbered as 1, 2, 4, 3, 9, 5, 6, 10, 7, 11, 13-17, 8, 12 and 18, respectively.

JUL 06 2005

1. A component mounting apparatus comprising:

first and second component supply tables for accommodating a plurality of components, said first and second component supply tables being arranged on both sides of a board transfer path;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table by suction, thereafter said first rotary member can be moved to a board positioned at a board mounting position, and the picked-up first components can be successively mounted onto the board while said first rotary member is moved in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being located along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table by suction, thereafter said second rotary member can move to the board positioned at the board mounting position, and the picked-up second components can be successively mounted onto the board while said second rotary member moves in third and fourth directions which are perpendicular to each other, with the third direction being parallel to the first direction, and the fourth direction being parallel to the second direction but not necessarily the same as the second direction,

wherein each of said first and second rotary members is independently moveable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and said first rotary member is capable of mounting picked-up components onto the board while said second rotary member successively sucks to pick up components at said second component supply table.

2. The component mounting apparatus as claimed in claim 1, wherein the first, second, third and fourth directions are each in a plane that is parallel to the board transfer path.

3. The component mounting apparatus as claimed in claim 2, further comprising a controller for mutually controlling said first and second rotary members in accordance with a timing at which, when said first rotary member carries out a component picking-up operation for picking-up components from said first component supply table, said second rotary member carries out a component mounting operation for mounting picked-up components onto the board when the board is at the board mounting position.

4. The component mounting apparatus as claimed in claim 1, further comprising a controller for mutually controlling said first and second rotary members in accordance with a timing at which, when said first rotary member carries out a component picking-up operation for picking-up components from said first component supply table, said second rotary member carries out a component mounting operation for mounting picked-up components onto the board when the board is at the board mounting position.

5. The component mounting apparatus according to claim 1, further comprising a board positioning section for positioning the board at the board mounting position such that the board is not moved during mounting of components thereon via said first and second rotary members.

6. The component mounting apparatus according to claim 1, wherein said first and second component supply tables are to accommodate different kinds of components.

7. The component mounting apparatus according to claim 1, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

8. The component mounting apparatus as claimed in claim 1, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.

9. A component mounting apparatus comprising:

first and second component supply tables for accommodating a plurality of components, said first and second component supply tables being arranged on opposite sides of a board mounting position, wherein a board transfer path along which a board is transferred extends between said first and second component supply tables;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table and thereafter successively mounting the plural picked-up first components onto a board, positioned at the board mounting position, while moving in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being located along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table and thereafter successively mounting the picked-up second components onto the board, positioned at the board mounting position, while moving in third and fourth directions which are perpendicular to each other, with the third direction being parallel to the first direction, and the fourth direction being parallel to the second direction but not necessarily the same as the second direction,

wherein each of said first and second rotary members is independently movable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and

wherein said first rotary member is capable of mounting picked-up components onto the board, at the board mounting position, while said second rotary member successively picks up components, via said second nozzles, at said second component supply table.

10. The component mounting apparatus according to claim 9, wherein said first and second component supply tables are to accommodate different kinds of components.

11. The component mounting apparatus according to claim 9, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

12. The component mounting apparatus as claimed in claim 9, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.

13. A component mounting apparatus comprising:

first and second component supply tables for accommodating a plurality of components, said component supply tables being arranged on both sides of a board transfer path;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table and thereafter successively mounting the picked-up first components onto a board that is positioned at a board mounting position, said first rotary member being movable in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table and thereafter successively mounting the picked-up second components onto the board, positioned at the board mounting position, while said second rotary member moves in third and fourth directions which are perpendicular to each other, with the third direction being perpendicular to the board transfer path, and the fourth direction being along the board transfer path,

wherein each of said first and second rotary members is independently movable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and

wherein said first rotary member is capable of mounting picked-up first components onto the board, at the board mounting position, while said second rotary member successively picks up components at said second component supply table.

14. The component mounting apparatus according to claim 13, further comprising a board positioning section for positioning the board at the board mounting position such that the board is not moved during mounting of components thereon by said first and second rotary members.

15. The component mounting apparatus as according to claim 13, wherein each of said first and second rotary members is rotatable about a horizontal axis, and wherein said first and second nozzles are positioned, respectively, on said first and second rotary members at regular intervals about the horizontal axis.

16. The component mounting apparatus according to claim 13, wherein said first and second component supply tables are to accommodate different kinds of components.

17. The component mounting apparatus according to claim 13, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

18. The component mounting apparatus as claimed in claim 13, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.

REMARKS

Accordingly, a Certificate of Correction should issue at no expense to patentee. Form PTO-1050 accompanies this request, in duplicate.

Respectfully submitted,

Kanji HATA et al.

By



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June 29, 2005

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 6,789,310

DATED : September 14, 2004

INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS:

Replace claims 1-21 of the patent with the following claims.

1. A component mounting apparatus comprising:

first and second component supply tables for accommodating a plurality of components, said first and second component supply tables being arranged on both sides of a board transfer path;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table by suction, thereafter said first rotary member can be moved to a board positioned at a board mounting position, and the picked-up first components can be successively mounted onto the board while said first rotary member is moved in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being located along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table by suction, thereafter said second rotary member can move to the board positioned at the board mounting position, and the picked-up second components can be successively mounted onto the board while said

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INVENTOR(S) : Kanji HATA et al.

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IN THE CLAIMS (cont'd)

second rotary member moves in third and fourth directions which are perpendicular to each other, with the third direction being parallel to the first direction, and the fourth direction being parallel to the second direction but not necessarily the same as the second direction,

wherein each of said first and second rotary members is independently moveable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and said first rotary member is capable of mounting picked-up components onto the board while said second rotary member successively sucks to pick up components at said second component supply table.

2. The component mounting apparatus as claimed in claim 1, wherein the first, second, third and fourth directions are each in a plane that is parallel to the board transfer path.

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PATENT NO. 6,789,310

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DATED : September 14, 2004

INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (cont'd)

3. The component mounting apparatus as claimed in claim 2, further comprising a controller for mutually controlling said first and second rotary members in accordance with a timing at which, when said first rotary member carries out a component picking-up operation for picking-up components from said first component supply table, said second rotary member carries out a component mounting operation for mounting picked-up components onto the board when the board is at the board mounting position.

4. The component mounting apparatus as claimed in claim 1, further comprising a controller for mutually controlling said first and second rotary members in accordance with a timing at which, when said first rotary member carries out a component picking-up operation for picking-up components from said first component supply table, said second rotary member carries out a component mounting operation for mounting picked-up components onto the board when the board is at the board mounting position.

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INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (cont'd)

5. The component mounting apparatus according to claim 1, further comprising a board positioning section for positioning the board at the board mounting position such that the board is not moved during mounting of components thereon via said first and second rotary members.

6. The component mounting apparatus according to claim 1, wherein said first and second component supply tables are to accommodate different kinds of components.

7. The component mounting apparatus according to claim 1, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

8. The component mounting apparatus as claimed in claim 1, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.

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DATED : September 14, 2004

INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (cont'd)

9. A component mounting apparatus comprising:

first and second component supply tables for accommodating a plurality of components, said first and second component supply tables being arranged on opposite sides of a board mounting position, wherein a board transfer path along which a board is transferred extends between said first and second component supply tables;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table and thereafter successively mounting the plural picked-up first components onto a board, positioned at the board mounting position, while moving in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being located along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table and thereafter

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INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (cont'd)

successively mounting the picked-up second components onto the board, positioned at the board mounting position, while moving in third and fourth directions which are perpendicular to each other, with the third direction being parallel to the first direction, and the fourth direction being parallel to the second direction but not necessarily the same as the second direction,

wherein each of said first and second rotary members is independently movable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and

wherein said first rotary member is capable of mounting picked-up components onto the board, at the board mounting position, while said second rotary member successively picks up components, via said second nozzles, at said second component supply table.

10. The component mounting apparatus according to claim 9, wherein said first and second component supply tables are to accommodate different kinds of components.

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PATENT NO : 6,789,310

DATED : September 14, 2004

INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (cont'd)

11. The component mounting apparatus according to claim 9, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

12. The component mounting apparatus as claimed in claim 9, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.

13. A component mounting apparatus comprising:

first and second component supply tables for accommodating a plurality of components, said component supply tables being arranged on both sides of a board transfer path;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table and thereafter successively mounting the

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CERTIFICATE OF CORRECTION

PATENT NO : 6,789,310

DATED : September 14, 2004

INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (claim 13 cont'd)

picked-up first components onto a board that is positioned at a board mounting position, said first rotary member being movable in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table and thereafter successively mounting the picked-up second components onto the board, positioned at the board mounting position, while said second rotary member moves in third and fourth directions which are perpendicular to each other, with the third direction being perpendicular to the board transfer path, and the fourth direction being along the board transfer path,

wherein each of said first and second rotary members is independently movable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and

wherein said first rotary member is capable of mounting picked-up first components onto the board, at the board mounting position, while said second rotary member successively picks up components at said second component supply table.

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INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (cont'd)

14. The component mounting apparatus according to claim 13, further comprising a board positioning section for positioning the board at the board mounting position such that the board is not moved during mounting of components thereon by said first and second rotary members.

15. The component mounting apparatus as according to claim 13, wherein each of said first and second rotary members is rotatable about a horizontal axis, and wherein said first and second nozzles are positioned, respectively, on said first and second rotary members at regular intervals about the horizontal axis.

16. The component mounting apparatus according to claim 13, wherein said first and second component supply tables are to accommodate different kinds of components.

17. The component mounting apparatus according to claim 13, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

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INVENTOR(S) : Kanji HATA et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS (cont'd)

18. The component mounting apparatus as claimed in claim 13, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.

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